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The nice guy who finished last

Douglas Engelbart, mouse inventor and computer networking pioneer, has always had bigger things on his mind. That, say some, has been his downfall

ANNA MAR EMEDIOS — MERCURY NEWS

Douglas Engelbart says waiting yet again for the cycle of innovation to slowly turn has taken its toll on him.

Computer innovator's dream

BY DAVID PLOTNIKOFF
Mercury News Staff Writer

KAISER Drive in Fremont is no place for a guru. The view is uninspiring. The graceless electronics plants that loom like giant white salt licks on fertile bottom land by the Dumbarton Bridge do not lend themselves to big-time dreaming.

Douglas Engelbart does not complain about the view from Kaiser Drive. These days, he's grateful for the space. From his tiny office right off the main lobby of Logitech's headquarters building, he can see the future. He sees a future in which people work together, harnessing all the knowledge they share to solve mankind's great problems.

Nobody else can see what Engelbart sees. And therein lies one of the saddest stories in Silicon Valley history.

Every society must have a few first-class prophets, the deep-thinking cats who gaze at the horizon while the rest of us plod along with nose down to the grass. Their job is to tell us what direction to go and where we'll be in two or 20 years. Engelbart is one of those cats. "Doug is sort of like Moses, parting the Red Sea," says Howard Rheingold, author of "The Virtual Community: Homesteading on the Electronic Frontier." "You know, he's got the white hair and the far-off look in his eyes. And he really *did* deliver several generations of researchers."

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If this valley were a meritocracy, Engelbart would be holding court in a palatial university office or high atop some mountain, with students and seekers at his feet. But it didn't work out that way. Today, the Thomas Edison of the personal computer industry — the guy who was by and large responsible for the far-vision department from day one — does his dreaming in a donated office with hand-me-down furniture and wires hanging out of the ceiling.

It's fitting that Logitech, one of the world's largest manufacturers of computer mice, would shelter a 69-year-old researcher who's been all but forgotten by industry and academia. Call it a prophet-sharing plan. "They're very good to me here," says the man who invented the mouse.

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Next weekend, the pioneers who built the Internet 25 years ago will gather in Boston for two days of toasts, speeches and media events. It's a big-money reunion, sponsored by Bolt, Beranek and Newman, the key contractor that built the first stretch of the information highway. Engelbart, who was on the receiving end of the first network transmission, will be there — gently reminding anyone who will listen that the job is not finished yet.

For any ordinary computer scientist, being the recipient of the first network message in history would be the crowning achievement of a career. For Engelbart, it's not even a minor chapter. What happened that day in his laboratory at Stanford Research Institute (SRI) is little more than an interesting footnote in a brilliant 40-year run that includes prescient achievements in teleconferencing, interface design, multimedia and text handling. As the New York Times put it several years back, "Silicon Valley has spent the last 20 years implementing ideas Engelbart first demonstrated in the 1960s."

By rights, Engelbart should be a bitter, hateful old man. Imagine for a second if *you* had correctly predicted two or three full cycles of technology, only to see the industries you dreamed up turn their back on you. You would be hopping mad. You would be ready to tear the chips right off the motherboards with your teeth. But that's not Engelbart.

If there's one thing every researcher who came in

Engelbart was one of the first, if not *the* first, to think of computers as communications devices rather than just giant adding machines.

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still very much alive

contact with him in the glory days can agree on, it's this: Douglas Engelbart is one of the kindest, most gentle men they've ever met. He is the anti-Bill Gates. He is the nice guy who finished last.

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Receiving a visitor on a recent afternoon at Logitech, he looks like a retiree who should be piloting a Winnebago down Highway 1 rather than plotting the next cycle in telecommunications. With his silver mane and his sensible windbreaker, Engelbart, who lives in Atherton with his wife of 43 years, is a grandfatherly presence in a building full of people who weren't even born when he invented the mouse.

The visitor asks about how it felt to drive the very first stretch of the digital highway 25 years ago. He smiles and waves off the question, explaining why the anniversary is not terribly important to him.

"There were so many advances on so many fronts at that time. By the time ARPANET (the precursor to today's Internet) went up, I'd been working 15 years on the ideas of how to augment human intelligence. And in 1968, we'd put on a presentation at a computer conference in San Francisco where we'd demonstrated real-time video-conferencing. So you have to understand, we thought the network would just extend our reach, give more people access to the things we were developing."

Engelbart was one of the first, if not *the* first, to think of computers as communications devices rather than just giant adding machines. As early as 1950, at a time there were no more than a dozen electronic computers in the world, he was thinking about manipulating symbols on screens. He received his doctorate in electrical engineering in 1955 from the University of California, Berkeley. After a one-year stint as an assistant professor at Berkeley, he moved to SRI, which was, at that time, associated with Stanford University.

He'd spend the next 20 years at SRI, 18 of them running his own lab, with as many as 47 scientists working under him. The short list of Engelbart breakthroughs includes on-screen windows, the mouse (and a five-finger key set to go with it), teleconferencing, real-time collaboration and hypertext (a non-linear way of organizing vast amounts of information).

These technologies were all part of a bigger vision he had, which involved groups of workers using the powerful tools to speed up the cycles of innovation — a concept he called "bootstrapping." Some say Engelbart piloted himself from the fast lane of high-tech to a lonely dead end because he refused to let go of a vision that was too big to ever work.

Rheingold puts it this way: "The mouse, as Doug will continue to tell you, is a small part of a larger picture, which is in turn part of an even larger system. People have fixated themselves on pieces of hardware or pieces of software. From the very beginning he was saying, 'You gotta look at this as a whole.' "

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By 1974, Engelbart had gone as far as he could to get the other researchers in the lab behind "augmentation," his total system for collaborative problem-solving. "It was the way we lived back then," he says, noting proudly that the day-to-day work setup at SRI had tools — such as his hypertext system — that were more than 20 years ahead of the curve. Then, he started to encounter resistance among his staff. Fourteen of his researchers would eventually migrate to the Xerox Corp.'s legendary Palo Alto Research Center (PARC). As interest in his work lagged at SRI, Engelbart himself moved to Tymshare, the company that bought the rights to his "augmentation" technology in 1977.

Jon Postel had been a grad student working at UCLA at the time of the first network transmission. He later went to work for Engelbart, just as the exodus to PARC was under way. Today, he calls Engelbart's estrangement from the industry he pioneered "a tragic story." Postel believes Engelbart's dogged determination to stick with his big vision cost him in the long run. "When I worked for him, I would go into his office, and we would sit together and work with things on the screen and talk. It all made wonderful sense to me while we were talking, and then I'd leave his office and say to myself, *'Now what was that?'* "

Although some of his more forward-looking ideals (such as hypertext) were simply shelved, the disciples at PARC integrated other parts into their new work. The evolutionary link from Engelbart's lab to PARC's Alto personal computer to the Apple Macintosh is a direct one — right down to the mouse, a device Engelbart had patented as "the X-Y position indicator for display system" way back in 1963.

Engelbart laughs and looks away when it's pointed out that if he had a nickel for every mouse ever sold, he could fund his own research. "After I'd been gone a long time, they (SRI) had me over to dinner, and the man who was president then gave me a check," he says. That's standard practice for think-tank habitués. When you make your living inventing things, you're expected to sign over the patents to the folks who are picking up the tab.

Engelbart says that in the early '80s, he tried to sell the developers of personal computers on the value of networking, but they wanted nothing to do with it. "They were quite adamant," he recalls. "They not only failed to appreciate the value of having personal computers talking to each other, they told me it was a *bad thing!* They wanted to have it all on the desk, with no communication. I told 'em that was like having a fancy office with no door. That was a huge lost opportunity for the world. A decade down the drain."

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current — and possibly fi-
chapter in Engelbart's epic
in 1989, when he set up
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was one more shot at try-
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9-year-old Christina Engel-
ne of his four children) as
ctor, a secretary and a sole
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l for at least 3½ years. He
s daughter draw no sala-
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from the sale of Engel-
papers and videos, plus
consulting and seminar

elbart's "augmentation"
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One overview, "The Aug-
tion Papers," is an antholo-
three decades of research
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It's hard enough to invest in a vision that's somewhat esoteric. It's doubly hard when the main proponent of that vision is a soft-spoken man with no feel at all for the swashbuckling, self-promoting ways of entrepreneurship.

"Doug was a great contributor early on, and I don't think he's really gotten his due," says UCLA computer-science chairman Leonard Kleinrock, the man on the other end of that first Internet packet. "He was a really modest guy. I don't think the world will remember him as more than the inventor of the mouse. Doug was never a very good promoter. He had the vision, but he couldn't articulate it very well. That was the case early on — his stuff was hard to understand."

"When you listen to it, it sounds great, but when you go away, it's hard to remember what it was," says Postel, "The concepts are so difficult to get your head around. Too many people had that experience. People build things out of pieces. And it didn't seem there were pieces people could go build and make useful independently. Now, so many years later, you *do* see things such as Mosaic (a highly touted hypertext tool for Internet browsing) that implement small parts of his vision."

Today, the idea of time — and the cost of lost time — are very much on Engelbart's mind. Although he stops just short of voicing anger, he's visibly frustrated that the world has been so slow to come around to his ideas. "It's sort of like mankind's in a vehicle, moving faster and faster, and yet our headlights don't shine any further ahead and our ability to steer it isn't getting any better. So how long before we crash?"

It took 25 years for computer networking to become a mass-market item. How long before Engelbart's eight grandchildren create their school reports with hypertext? Engelbart says waiting for the cycle of innovation to slowly turn yet again has taken a toll on him.

"It's been very expensive to me personally, in stress and frustration. It's dented my personality in certain ways. I know it certainly makes it harder for me to write. I write it, send it out to the world, and no response. One of the biggest feelings of sorrow or loss is there would have been so much more I could have contributed if . . . " He pauses and lets the sting of the thought wear off. "You know," he says softly, "I haven't had the resources to do the exploratory work since the mid-'70s."

Engelbart today, says Rheinhold, "is satisfied with nothing less than people understanding the totality of what he's doing. It's going to take another 10 or 20 years. Nobody knows if he's *got* another 10 or 20 years. You gotta give him credit for incredible persistence, though; he's still at it, still pitching."

As afternoon turns to evening, and the shadows grow long through the window that looks out on Kaiser Drive, Engelbart is indeed still pitching. A visitor asks if he's looking forward to breaking bread with the other Internet trailblazers back in Boston.

"It's as if the pioneers are having a big celebration for getting all the way to Kentucky," Engelbart says. "That's great, but there's more frontier out there. We think we've arrived. And that's what I've heard for these past 30 years: 'Hey — *we're here.* We're really doing it. Just like you said. So Doug, you can stop waving your hands now.' What can I say? There's that target and it's still *way up there.*"